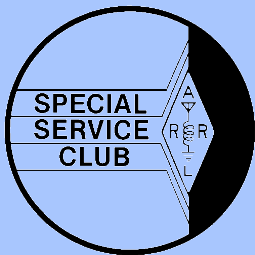




The Raleigh Amateur Radio Society's **EXCITER**

GET INVOLVED

- RARS General Membership meeting: **Second Tuesday** of the month.
- The RARS net meets every night except Saturday @ 8 p.m. on 146.640.
- The RARS Technical & Trader's net: Saturdays @ 8:00 PM on 146.64.
- RARS meets for a monthly dinner on the **First Tuesday** of each month.
- On the **fourth Tuesday** of every month, in-person meeting at Ridge Road Baptist Church where there will be project tables, demos, snacks, and socializing.



PUBLIC SERVICE EVENTS

Interested in helping? Visit
<https://www.rars.org/public-service.php>

frequently for our 2021 ham public service schedule.

RARS General Meeting

Main Topic: Small resonated HF Loop Antennas

By: Richard Quick, W4RQ

Date: August 9, 2022

Time: Meeting at 7:30 PM, informal gathering at 7PM on Zoom.

Where: Zoom

RARS In Person Meeting

Date: August 23, 2022

Where: Ridge Road Baptist Church

Time: 7:00 PM

On the fourth Tuesday of every month. In-person meeting at Ridge Road Baptist Church where there will be project tables, demos, snacks, and socializing.

RARS Officers

PRESIDENT

John Honeycutt
N8ZU
919.417.2477
jfh49@bellsouth.net

VICE PRESIDENT

Tom Lewis
N4TL
N4TL2@yahoo.com

SECRETARY

Mark Kilmer
KM4JRH
919.676.0110
mark.kilmer@gmail.com

TREASURER

Greg Seamster
KE4PAX
919.859.0029
KE4PAX@arrl.net



The Raleigh Amateur Radio Society

The Raleigh Amateur Radio Society, Inc. (RARS) was founded in 1969 and continues to serve and support the amateur radio community in the greater Triangle area. In 1999, the society incorporated a new RARS and obtained 501(c)(3) non-profit tax status.

The objectives of the club are to promote worldwide friendship through amateur radio; to be of public service by providing radio communications in times of disaster, emergency, or civic needs; to educate members in radio technique, and to provide training classes to assist in obtaining amateur radio licenses.

Anyone interested in amateur radio is eligible to apply for membership. Regular dues for licensed amateurs are \$18 per year. (From July 1 through June 30.) Additional licensed immediate family members pay \$5 each per year. Dues for licensed full time students and licensed seniors 60 and over are \$12 per year. Unlicensed individuals may become associate members for \$9 per year. Applications for membership are available from the treasurer or on the RARS web site.

<https://www.rars.org>

Exciter

The Exciter is the official newsletter of the Raleigh Amateur Radio Society. It appears each month as a PDF on the RARS website at www.rars.org. Members receive email notification when the latest version is available. Please provide your email address to the Treasurer.

The Exciter welcomes articles, advertisements, and other contributions. To submit a piece to the newsletter, please contact the Editor. The Editor reserves the right to edit any and all pieces. The submission deadline for each month's Exciter is the Saturday that is ten days before the general meeting. All submissions must be final. Drafts are not accepted.

The views expressed in the Exciter are those of the individual authors and do not necessarily reflect the views of the Editor or RARS.

Tom Lewis, N4TL, editor (editor@rars.org)

July 12, 2022 RARS meeting

The meeting was held on Zoom. Many members connected from 7PM on. President John Honeycutt, N8ZU, ran the formal part of the meeting. The meeting minutes are on [page 29](#). Joe Owen, K4HEW, gave a presentation about "Mid-air Refueling Mission & Communication Methods Used". His presentation is on page 40. Jump to [page 39](#).



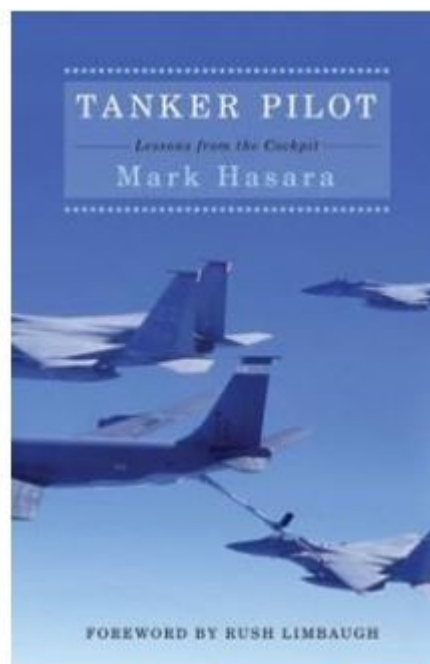
Joe in his flight suit, ready to go



Joe Owen, K4HEW



Richard K7RLH's comment about KC-135



Tanker Pilot: Lessons from the Cockpit by Mark Hasara

July 12, 2022 RARS meeting



TL Tom Lewis, N4TL, Raleigh	BN Bob n4geb	JK Jerry KE4TTS Cary, NC
Mark Kilmer - KM4JRH, ... (Host)	BK Brantley K4CBW	JK Jim KM4WRK, Raleigh
JH John Honeycutt N8ZU	Carl W8WZ	Joe N4BJH Wake Forest
Tadd (KA2DEW) Torborg	CW Charles WA4OSS	JR Julie Royster
BC Brock Card	CW Charles WB4DCM Raleigh	JJ Just Joe - K4HEW - NC
DK Denny Ko4IBL	C- Chuck - K4HF, Raleigh	KN KB2TNR Nancy Torborg
EN Ernie NC4EW	Chuck-K4RGN	LN Lee N4WYE
LK Louis K4BYN	CK Cliff KA7NSU Cary	MK Mark KB4CNQ Raleigh
MS Mike Salmi, AE4IM Fuquay	Curt Phillips W4CP	RK Richard K7RLH Apex
A- AD4GX - Ken Latchum-Raleigh	DW dennis wz0q	R Richard Kroeger N1FUA Apex
AA Alan AB4OZ RALEIGH	Dick KD4ISC	RK roger k4klk
AK Andy KB3WPR	DA Doug AD4UL Erie,PA	SK sam KN4RWI
B- Bill - W4WHW	Greg KE4PAX Raleigh	WA Walker Armistead KD4YJX
BK Billy Ke4vnc	Hank - K4HM	I iPad

42 people attended the zoom meeting

Fourth Tuesday RARS Monthly Event

Each fourth Tuesday we have the RARS Gathering at the Ridge Road Baptist Church starting at 7pm. The church is at 2011 Ridge Road, Raleigh. Every month the RARS Gathering will include hands on demos of old and new ham radio and an extended social period. Members and non-members are welcome. This is the event you want to attend in order to find out about the local ham community, to meet other ham radio operators, see our equipment, get on the air, and exchange your ideas with our ideas in a fun forum.



Ridge Road Baptist Church

July 26th, Fourth Tuesday RARS Monthly Event

July's Gathering has about 15 attendees. The group worked on antenna construction and tuning, satellite tracking, operated on 40m with contacts in Martha's Vineyard and Ontario as well as many other 40m contacts. At least 3 people had their first HF SSB contacts at this Gathering. Thanks N3LTV for talking these new operators through their first contacts. One ham brought in his home-made 6m antenna project and went home with a working antenna for 6m repeater operation. A couple of dual band 2m/70cm ground planes were made and tuned. We had a portable satellite antenna demonstration.

At the Gathering we regularly put up a pair of dipoles, on 20m and 40m, and have multiple HF radios available for contacts. Two people joined RARS for the first time. Richard N1FUA had a spread of stacks and sodas for the attendees.



Satellite Antenna

July 26th, Fourth Tuesday RARS Monthly Event, continued



Antenna Construction

I hope to see you all on August 23rd for the next Gathering. Next month we'll again be working on coax jumpers construction and antenna tuning/construction, and we'll have two GOTA stations operating.

The meeting is from 7pm to 9pm at Ridge Road Baptist Church on the 4th Tuesday of each month.

We start setting up at 6pm to leave us time to erect a pair of HF dipoles, and we start tearing down at 9pm. The address is 2011 Ridge Road, Raleigh.

See the photo of the church in this Exciter.

The Gathering is a face to face meeting with multiple work/play/demo stations for simultaneous activities.

All hams and interested persons are welcome.

Teenagers we'd trust to work independently with hot and sharp tools are also welcome.

Membership is not required.

73 de Tadd KA2DEW

Future RARS Meeting Topics

Titles, topics, and speakers **subject to change.**

Date	Topic	Presenter
8/9/2022	Small resonated HF Loop Antennas	Richard Quick, W4RQ
9/13/2022	"Things hams were taught that aren't true"	Chuck Till, K4RGN
10/11/2022	RARS Officers nominations & Esperanto and Amateur Radio	Election committee & Murray Merner, K4MHM
11/8/2022	RARS Officers election and Show and Tell	Election committee & members

During the Zoom meetings please keep
your microphone muted.

Please edit your name so your
Name, Call and Location are shown.

July 2022 RARS net report

Thirty one 2m nets: 418 checkins, 794 minutes

One 10 m net: 7 checkins 22 min

KT4JR, Julie Royster

RARS Member Birthdays & New Members

Member Birthdays

Clement	KD4BMA	08/08
Darrell	KN4ZYA	08/08
Eric	NR4O	08/10
Hertz	KN4CUZ	08/10
Andy	AA9P	08/10
Manny	K4KBM	08/14
Aaron	KN4ORB	08/14
Christopher	KM4RNC	08/15
Denny	KO4IBL	08/17
Bernard	W4BRB	08/17
David	W4EIP	08/18
Mike	KM4BJV	08/18
Bonnie	KK4OAK	08/19
Chuck	W3WZN	08/19
Randy	KI4BRZ	08/20
Al	KE4IHX	08/20
Mike	KN4DRN	08/21
Barry	KD4WTI	08/22
Steve	N4BTS	08/22
Steve	KJ4BX	08/23
Hal	K4NKR	08/24
John	KG4AKV	08/25
Jeremy	K2HJX	08/26
Jeff	NW4Z	08/29
David	KN4QT	08/29
JB	KJ4ACB	08/30
Mike	KK4ETS	08/30
Dan	KD4AGQ	08/31

New Members

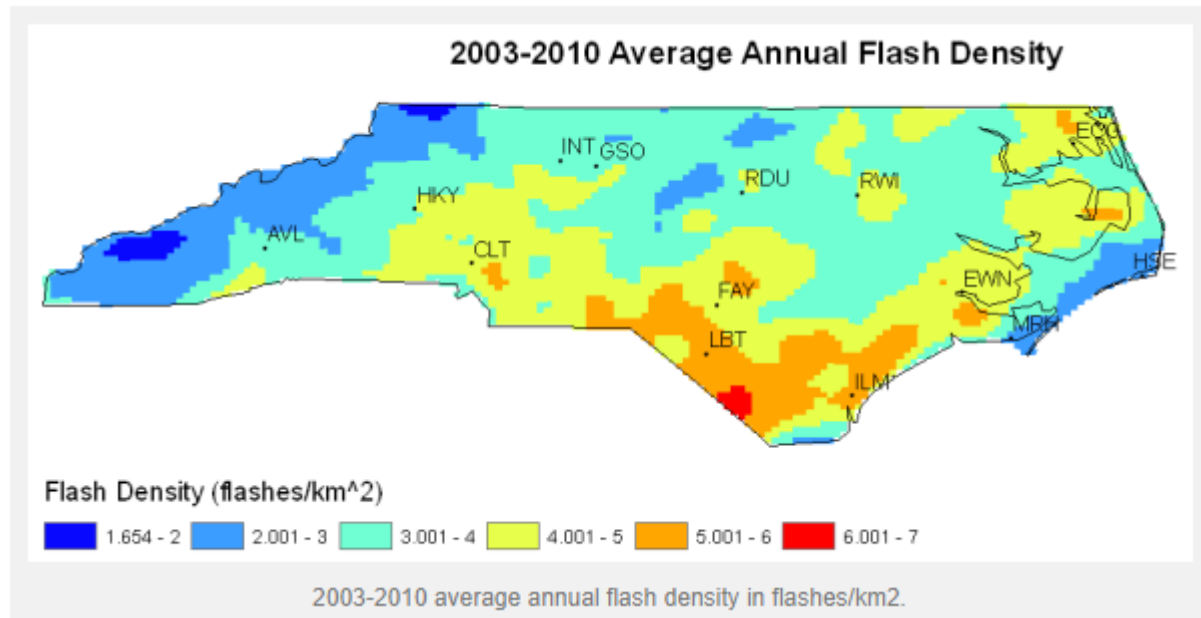
Bob Saunders	W2IKN
Raleigh Stout	AC5JW
Ed Bartels	Not Licensed
Joyce Bartels	Not Licensed
Jim Barron	KO4SKC
Corky Brunskill	W2AAT
Bruce Shoemaker	KQ4CHV

RARS Monthly Dinner

All members and guests are welcome to the monthly (first Tuesday) RARS Supper, 6:30PM, at the CHOW Restaurant, 8311 Creedmoor Road, Raleigh. The restaurant is at the corner of Brennan Drive and Creedmoor Roads, behind McDonalds. After entering the restaurant, go to the left rear to the private room. Informal and Dutch, just bring your appetite and best rag to chew. "Your attendance will help us retain the private meeting room."

Another way to minimize lightning damage

As this graphic shows, on average there are four lightning flashes per square kilometer per year in our area of North Carolina.



Usually, amateur radio operators focus on the risk that lightning will hit antennas or Duke Energy power lines. But there's another way that damage to your shack can result -- from a near miss. See the March/April 2021 issue of QEX. A 90th-percentile strike 30 feet away will induce a 630 volt transient across the ends of a ten-turn loop of wire with a 6-inch radius.

Quoting the article: "These threats to your station might be hidden in a bundled-up coil of Ethernet cable, or other bundled-up power or audio cables, or even a loop of grounding wires in your shack! To combat this threat, your station should not have any wires that inadvertently form loops. When you coil-up excess cables, squash the bundle in the middle with a single twist or bundle it up in figure-8 fashion."

Some years ago, lightning hit (and exploded) an oak tree in my neighbor's yard. I lost an Xbox, an Ethernet router, and a sound card on a PC. Loops in game controller cables, Ethernet cables, and speaker cables could have been the cause.

Chuck Till

K4RGN@ARRL.NET

Raleigh, Wake County, North Carolina, 27613, USA (FM05pv81)

RARS Membership links

Use the following link to verify / update your membership profile.

<https://www.rars.org/userprofile.php>

Use the following link to renew your membership.

https://www.rars.org/membership_renewal.php

HAM RADIO LUNCHEON

Everyone is welcome!

Every Thursday at 11:30 am

New York Diner, 909 McKnight Drive Knightdale.

<https://www.facebook.com/NewYorkDinerNC>

Check the latest information on the AB4OZ QRZ entry.

[QRZ.COM](https://www.qrz.com).

Hamfest Calendar

For details go to <https://www.arrl.org/hamfests/search>

Free AB4OZ Hamfest, Weather permitting

The free AB4OZ Hamfest will be Saturday, August 27, 2022. Setup at 9AM. Start time is 10AM. New location, Golden Corral Restaurant rear parking lot. 3551 Grenelle street, Raleigh NC 27603.

Check the latest information here [QRZ.COM](https://www.qrz.com).

<https://www.rars.org>

RARS VE Team

The RARS VE Team will give exams at the monthly RARS Gathering at Ridge Road Baptist Church on August 23, 2022. Exams for all classes, Technician, General, and Extra will be given and begin promptly at 7pm. There is no charge. Preregistration is required. To do that contact Joe White, WA4GIR at wa4gir 'at' arrl 'dot' net. Also you will need to preregister with the FCC CORES system to obtain a Federal Registration Number (FRN) prior to completing the preregistration process. Instructions for doing this can be found at: <https://www.fcc.gov/wireless/support/universal-licensing-system-uls-resources/getting-fcc-registration-number-frn> . There are also several YouTube videos on the subject.

Thanks,

Joe

WA4GIR

"Amateur Radio in 1955: The Phil-Mont Mobile Radio Club's "Every Single Minute"

In 1955, The Phil-Mont Mobile Radio Club, an association of mobile amateur radio operators, provided emergency communications during the during the devastating flooding along the Delaware River and in the Pocono Mountains following Hurricane Diane, the sixth costliest U.S. hurricane of the 20th century...fifty years before Hurricane Katrina. In 1959, the club produced this short film to explain amateur radio, and especially mobile communications as practiced by the club. (The main film begins after a three minute interview with Jim Spencer, W3BBB, produced by a local cable channel many years later) Phil-Mont Mobile Radio Club: <http://www.phil-mont.org>

Written by Margaret Leber for the YouTube video.

<https://www.youtube.com/watch?v=xYx8VNzYwRE>

49th Annual



Save the Date: April 8 (Saturday) 2023
NC State Fairgrounds in the Jim Graham Building



Oops

Don't make this mistake when putting up wire antennas. The support cable is going through the ladder.

73 Anonymous

RARS Classifieds

Copied from <https://www.rars.org/classifieds.php>

The items below were listed within the last 30 days on the RARS website.

Check the RARS Classified List on the RARS website regularly for new items.

For Sale: Icom IC-2720H Dual Band Transceiver - \$100

Posted July 27th, 2022 by: KA9QJT

Contact: ka9qjt@hotmail.com

The Icom IC-2720H is one of the earlier predecessors to the ICOM IC-2730A.

The radio base and head unit (display/controls) are separate.

Radio comes with:

- + Mounting brackets for both the radio and the head unit
- + Separation cable
- + HM-133 Microphone
- + DC power cable, terminated with Anderson Powerpoles
- + Mounting hardware
- + User Manual
- + Original Box

Radio is used, but clean. Non-smoker. \$100 firm.

Brian - KA9QJT

919-609-4664 (text 1st) or email

Anytone 578UVIIIPro Tri-Band DMR Mobile Radio with the matching antenna \$450

Posted July 27th, 2022 by: NC1PA

Contact: parmstrong256@gmail.com

Thank you for looking. This is for Anytone 578UVIIIPro tri-Band DMR Mobile Radio and the matching AT antenna. Never mounted in a vehicle, used in a smoke free home.

- Operates on 2m/220/70cm and DMR
- Bluetooth enabled with the BT PTT button

RARS Classifieds continued

- Wiped to factory, ready for your codeplug
 - Comes with the Anytone triband mobile antenna
 - Programming software and any updates can be downloaded, but I'll have it on a flash drive for you
 - Lightly used and comes with the box and original accessories.
 - Power cable has been fitted with power poles
 - Pictures available
-

Anytone AT-878UV Plus Analog/DMR with BlueTooth with accessories - \$325

Posted July 27th, 2022 by: NC1PA

Contact: parmstrong256@gmail.com

Thanks for looking. This is for Anytone AT-878UV Plus dual-band and DMR HT. A great little radio that I'm not using enough. Comes with all original accessories. Please email me with any questions.

- Operates on 2m/440 and DMR
 - Bluetooth enabled with the BT PTT button
 - Wiped to factory, ready for your codeplug
 - Comes with the Anytone hand mike, Anytone mobile charger, Nagoya NA-771 antenna, and the Nagoya Revex window clip antenna mount for your vehicle
 - Programming software and any updates can be downloaded, but I'll have it on a flash drive for you
 - Lightly used and comes with the box
 - Pictures available
-

Misc Ham Radio Gear

Posted July 26th, 2022 by: K4HF

Contact: k4hf@arrl.net

ICOM PS-30 13.8vdc/25a 2 units \$55 each

ICOM PS-55 13.8vdc/20a \$45

MFJ 989B 2KW 160 to 10 Meters Antenna Tuner \$185

MFJ 890 DX Beacon Monitor w/ps \$65

MFJ 1702B Coax Antenna sw w/ctr gndg pos. \$15

RARS Classifieds continued

D-104 Base Mike w/2 wires \$25
Oak Bay LP-11P 1 KW Low Pass Filter \$10
JPS Communications NIR-10 Noise Suppressor \$60
Hy-Gain AW22XL Rotor, no controller, needs testing \$15
Turner 350 hand mike w/ptt \$15
Astron RS35M 13.8vdc/25a cont. \$110
Pyramid 13.8vdc/25a Power Supply \$50
Kenwood PC1A Phone Patch \$15
Signal Link USB Audio Interface, set for ICOM, works \$75
Wouxun KG-UV899 As new in box 2M/440 MHz 5 Watt handheld \$55
ICOM IC-229H 2M 50 Watt Mobile with mtg brkt, mike and manual \$65

Contact me by e mail, preferred, or (919) 872-6555 - Chuck

For Sale: Homelite CS-40 Chainsaw

Posted July 25th, 2022 by: N4TL

Contact: n4tl2@yahoo.com

Need to trim trees around your antenna?

.

For Sale: Homelite CS-40 Chainsaw. It has a 20-inch blade. Includes plastic case, gas can and some two-cycle oil for the gas. One extra chain. I used it about 6 weeks ago. \$50.

.

Contact me by email. 73 Tom N4TL

FREE, FREE, ALL MUST GO ! !

Posted July 23rd, 2022 by: KI4OTO

Contact: ki4oto@gmail.com

2 ea, KENWOOD KSC-15, h.t. charger base, in= 12 vdc (wall wart), out= 10 vdc.@ 170 ma.

1 ea. Tower climbing harness, "MILLER 850 Universal", good condition.

<https://www.rars.org>

RARS Classifieds continued

1 ea. Safety belt for climbing harness, above, serviceable condition.

1 ea. "NETGEAR" LAN card for p.c. tower or desktop, untested.

1 ea. MIDI / Joystick card for p.c. tower or desktop, untested.

1 ea. LAN adapter w/Flash, PCLA 8225B, 8/16 ISA bus, RJ-45 conn.
(Intel EtherExpress PRO/10+) NEW, Sealed packaging.

1 ea. Wireless G desktop adapter, D-Link DWL-G510 "Air Plus G", w/ cd ROM.

Call Ken @ 919-270-8773 for info. fone only please, leave message.

Power Transformer, Medium power

Posted July 23rd, 2022 by: W4NPN

Contact: fbW4NPN@gmail.com

I have two excess power transformers:

420-0-420V at 75ma CCS. Probably good for 100ma in amateur service. Good for powering something like a 6L6 or 807 xmtr.

Also has 6.3V at 4 amps.

Also has an odd 7.3V at 1 amp winding. What needs 7.3V? Run that through a voltage doubler and get up to 20V for some solid state purpose.

\$10 each.

Pickup in Chapel Hill; pls contact by email first, then we can talk if desired.

RARS Classifieds continued

B+ Power Transformers

Posted July 23rd, 2022 by: W4NPN

Contact: fbW4NPN@gmail.com

Two nice power transformers I don't need. 540-0-540 volts at 150ma, (80 watts continuous, probably 120 or more watts in Amateur service. Also has 5V at 2amp for rectifier and 6.3V at 6.5amps for many filaments.

A great xfmr to build a utility or "economy" shop power supply, or to power some 807's or 6146's, etc.

You could run the 5V through a voltage doubler and get about 14 volts to run some solid state parts of a circuit or for test bench purposes (variable 0 - 14V supply, for instance).

$540V \times 1.4 =$ about 750 volts, a very useful output (capacitor input filter).

I also have two matching filter chokes. $540V \times 0.9 =$ 480 volts (choke input filter). \$5 if you buy a transformer.

Too heavy to ship; pickup in Chapel Hill. Send email first, then we can phone talk if necessary. Transformers are only \$15 each.

SB200 Heathkit Amp, amp keyer, and Heil FS-2 foot switch

Posted July 19th, 2022 by: N4GEB

Contact: brownr@mail.com

Heathkit SB 200 HF Linear Amplifier

Amp keyer interface

Heil FS-2 foot switch

I have replaced the tubes, filter caps, and all the rectifier diodes. Works on 120 or 240 volts, currently configured for 120 volts. (easy mod to change to 240)

Price 400 dollars.

Local pickup only, or I can meet you in the Raleigh area, I live in Clayton. I will not ship. Please email me if you have any questions or would like to come by to see it.

73 Bob

RARS Classifieds continued

Antenna/Impedance Analyzer Kit 8kHz-440MHz

Posted July 17th, 2022 by: AG4AY

Contact: todd.nichols@ieee.org

For sale: AQRP 8kHz - 440MHz vector impedance analyzer kit, with case. This kit is based on the STM32F407 Discovery board, uses a 320QVT TFT touch screen, and is standalone and battery powered.

Kit URL: <https://www.qsl.net/k5bcq/Kits/Kits.html> (scroll down to kit #25)

Photo of kit: <https://i.imgur.com/pQRqGvl.jpg>

The kit is totally unassembled, with smaller plastic bags not opened. Asking \$75.

Crosley tombstone tube radio

Posted July 17th, 2022 by: N1LVN

Contact: joe@scubajoe.net

I've wanted to restore this radio, but it's just not happening. This is an old battery operated radio. I've never tried it because all of the wiring needs to be replaced, but all of the tubes appear to be there, and as far as I can tell it's fully intact. \$50

Yaesu FTM-6000R

Posted July 11th, 2022 by: AE4IM

Contact: mikesalmi@icloud.com

Like new. Less than a year old. Only used indoors in a non-smoking environment. I added Anderson Power Poles to the power cord. I am including an extension cord for the microphone in addition to the stock long and short control cables and the USB cable for programming. \$269.00.

Uniden HR-2600 Ten Meter 25 Watt all mode Transceiver

Posted July 7th, 2022 by: K4HF

Contact: k4hf@arrl.net

The HR-2600 operates with 25W input, on ssb, cw, am and fm and covers from 28.0 to 29.7 MHz. It comes complete with mike, manual, box, mtg brkt and DC cord w/power pole conn. \$70

Contact me by e mail, preferred, or (919) 872-6555 - Thanks, Chuck

<https://www.rars.org>

RARS Classifieds continued

Wanted : End fed dipole or any stealth HF antenna

Posted July 5th, 2022 by: N3HKV

Contact: romanus262@gmail.com

Greetings;

I am seeking an End fed dipole antenna or any type of stealth HF antenna. Moved into an HOA so I am looking to experiment. Currently working with a rain gutter set up that is not so great

You can email or text me at 412-600-9003

Thanks and 73

Rolling Hydraulic floor jack

Posted July 4th, 2022 by: W4NPN

Contact: fbW4NPN@gmail.com

For Sale: Rolling hydraulic floor jack, mostly for automotive use. 4,000 pound capacity. Used a little over the years but has mostly lived in its box. \$20. Email me to arrange a pickup in Chapel Hill. Thinning the herd...fbw4nnp@gmail.com

Misc VHF/UHF Mobile and Handheld Radios - Revised

Posted July 1st, 2022 by: K4HF

Contact: k4hf@arrl.net

Yaesu FT-7800R 2M/440 50 Watt Mobile, mtg brkt, mike, manual, tested - \$175

FT 7800R with a Diamond K9000TM motorized carrier antenna mount w/ NR770HAB 2M/440 MHz antenna - \$235

ICOM IC-229H 2 Meter 50 Watt mobile, mtg brkt, mike, manual, tested - \$55

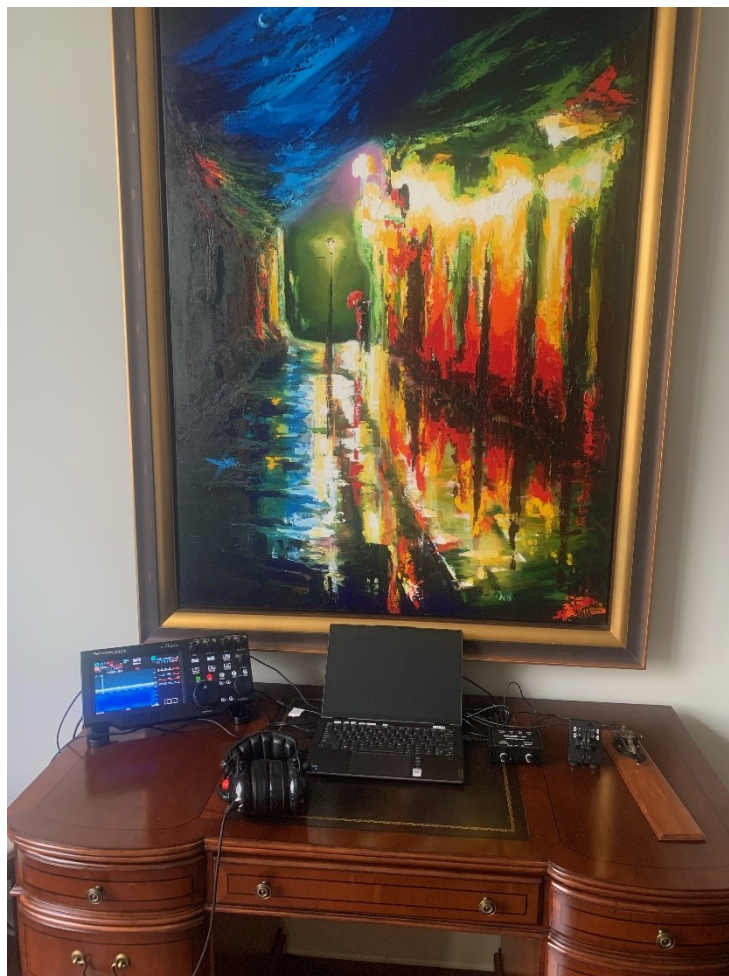
Wouxun KG-UV899 2M/440 5 Watt Handheld as New, in box - \$45

Contact me by e mail, preferred, or (919) 872-6555 - Chuck

Remote Control CW Operations Using FlexRadio Systems 6500 and Maestro

By: Carl Davis W8WZ

July 2022



(Operating Position in New Orleans)

In January of 2022 I bought a condo in New Orleans, Louisiana and began splitting my time between this second home and my primary residence in North Carolina. While I enjoy spending time in the Crescent City, I quickly began to miss my hobby of amateur radio, especially my participation in Morse Code contests such as CWT every Wednesday. I needed to find a solution. Erecting an antenna at my condo is not a viable option, so I began to look into remote control (RC) operation of my station in North Carolina from the Big Easy.

Remote Control CW Operations, continued

Because I am primarily a CW operator, and I often use a hand key, bug, and paddle, I limited my search for a remote-control CW solution that would allow me to use any kind of key I wanted. This quickly led me to the FlexRadio Systems Maestro. Due to supply chain issues new Maestros were not available in early 2022 (and still aren't as of mid-2022). However, I was fortunate enough to find one on the used market. Next, I needed to get a Flex 6000 series radio. I also found a used 6500 and began to assemble my station.

Antenna:

Because I will still be using my Yaesu FTDX10 as my primary radio when I am operating from the North Carolina Station, I installed an antenna switch so that I could switch my antenna between the two radios. As far as antennas go, I wanted to use an antenna that covered multiple bands and performed well, so I hooked up my End-Fed half wave antenna that covers 80 to 10 meters. Mine is installed as an inverted L and gives me good coverage across the US and into Europe. [EFHW-8010-2K-Plus - MyAntennas.com](#). For lightening protection, I have a polyphaser in the antenna feedline. [PolyPhaser IS-50UX-C0 PolyPhaser Coaxial Lightning Protectors | DX Engineering](#) While, this lightening protection has always been part of my station, it is especially valuable to me now that I am operating remote and am not physically present at my station to disconnect the antenna during storms.

Power Connection:

It is important to be able to turn the radio on and off remotely. There are many ways this can be accomplished. If the FlexRadio is on and the power is turned off, then the power comes back on, the FlexRadio will not automatically turn itself back on when power is restored. In this way it is different from other devices, such as a router, that will re-start as soon as power is reapplied. A solution to this problem is easily achieved. On the back of the flex radio there is an RCA jack labeled "REM ON". If this jack is shorted out, then the radio will automatically turn on when power is restored. So, I shorted out an RCA plug and plugged it into that jack. Next, I put the MFJ Switching Power Supply that powers the FlexRadio on an internet controlled switch

Remote Control CW Operations, continued

[Kasa Smart Plug Mini with Energy Monitoring, Smart Home Wi-Fi Outlet Works with Alexa, Google Home & IFTTT, Wi-Fi Simple Setup, No Hub Required \(KP115\), White – A Certified for Humans Device - - Amazon.com](#)

This switch required me to download an app for my iPhone and set the switch up on my LAN (home internet connection). I plugged that switch into my AC line surge protector, then plugged the power supply into it. Now, I can open an app on my phone and turn the power supply on and off. When I turn it back on, the radio comes back on.

I found that to get 100W out of the FlexRadio6500, I have to provide 15.5VDC to the radio. I switched power cords (including changing fuses in the power cords) and found this to remain true. I suspect that the radio's Anderson Power Pole DC input connector or built-in fuse may be adding resistance to the circuit. I didn't have time to trouble shoot, so simply solved this issue by adjusting the voltage on my power supply to 15.5V.

Remote Control:

There are several ways to control the FlexRadio remotely. I have found the simplest to be using the SmartLink system. SmartLink is fairly easy to set up compared to the other options for remote control. Not being a computer/network expert, I opted for the simplest option. A guide to Smart Link can be found here: [SmartLink QSG for SmartSDR \(flexradio.com\)](#). My experience was that in the presence of my radio, I had to ensure that the correct software was present on my Maestro by downloading the latest version of the Smart SDR software. This was as easy as touching a button on the screen. Then I had to create a Smart Link account by filling out some basic information such as my name, call sign, etc. Then, once my account was created, I had to affiliate my radio with that account. That was as easy as pressing a button on the Maestro telling it to affiliate the radio that it could see on my LAN with my Smart Link account. Then I had to key the radio directly (not using the maestro) to prove that I really was physically present at the radio I wished to affiliate with my account. I did this by plugging a key into the radio's key jack and tapping it shut to key the transmitter briefly. After that, any time I log into my SmartLink account, no matter where I am at, it will give me the option to connect to my radio in North Carolina as that radio is now affiliated with my SmartLink account.

Remote Control CW Operations, continued

I later downloaded an app for my iPhone that allows me to control my radio over my iPhone. Since I already had a smart link account, as soon as I downloaded that app, I could use my radio via SmartLink through that app.

I also downloaded the Smart SDR software on a laptop computer, and via SmartLink, I can access my FlexRadio anywhere I am at via the computer too. However, neither the iPhone app, nor the computer, allow me to plug in a morse key, only the Maestro provides that option. I find that I use the iPhone app to listen quite a bit, and to check into my weekly QCWA SSB net. It can also be fun to be at a friend's station and use my iPhone to monitor his transmitted signal while sitting in the same room as him. It is kind of like a personal Reverse Beacon Network since we can hear how he is sounding in NC by listening to his signal on my app.

Maestro Settings:

The first time I tried to send code using my Maestro remotely, the transmitted code was nothing but gibberish. To fix this, I had to access the menu that one sees after pushing in on the Mic/Speed/Power button on the Maestro. When that button is pushed, a menu comes up that shows an option called "delay". The default delay is zero, meaning the radio is in absolute full QSK mode. The problem with this is that Flex radios are not capable of 100% QSK unless you use two different antennas with them (which is what the Maestro manual recommends for any speed above 30 WPM, which it calls QRQ). To adjust to the limits of the radio, and the inherent latency of internet connections, I moved the delay speed up to 217 milliseconds and then the radio worked great. I must say, that when I was transmitting the garbled code, the maestro's side tone sounded like good code. So, the only way I knew I was transmitting garbage was to monitor my signal using a webSDR. I realized there must have been a problem because no one would answer my CQ and RBN ([Welcome! - Reverse Beacon Network](#)) was not picking me up. So, I used a webSDR ([websdr.org](https://www.websdr.org)) to monitor my signal and realized it was just sending lots of mixed-up dots and dashes. I then had to monitor my signal as I adjusted the delay time to find a sweet spot to where the code became legible and the TR delay was still fast enough to be functional. Set-

Remote Control CW Operations, continued

ting 217 is that spot for me. Your milage may vary. I found nothing about this in the FlexRadio literature, nor online. I figured this out by trial and error.

To use a straight key, bug, or external keyer you need to go into the main menu by tapping the word "menu" on top of the Maestro's screen. Then you must select the "Phone/CW" option from the right side of the screen. Then you must ensure that in the CW section the settings are as follows: "Iambic" shows "Disabled" and is not highlighted, "A" is not highlighted, "B" is highlighted "Swap" has "DASH/DOT" highlighted, Sideband has "CWU" highlighted, CWX has "Sync" highlighted and "Breakin" has "Enabled" highlighted. I did not find this set up to be intuitive or understandable, it was discovered via much trial and error on my part. Additionally, Flex uses Tip Ring Sleeve stereo plug connectors for connecting a morse key. This was not new to me since Yaesu has been doing this since the 1990's and I am very familiar with Yaesu rigs. However, the Tip/Ring/Sleeve connections that Flex uses are different than what Yaesu uses. They use different wiring configurations for TRS. So, I had to make new wires for my keys and label which one plugs into the Flex (maestro or radio itself) and which ones are for the Yaesu radios I own.

Another thing to know about the Maestro. It must be plugged into wall power unless you purchase and install an aftermarket battery that goes in a battery compartment built into the maestro for this purpose. It does not come with a battery. The one I chose is: [Amazon.com: Mogix External Power Bank Charger with 2 Fast USB Ports Compact 10400mAh #Voted Best Travel Phone Accessories TSA Compliant Carry-on Compatible with iPhone, Samsung, Android, LG, Huawei, Sony, etc. : Cell Phones & Accessories](https://www.amazon.com/dp/B078888888) This battery must be charged while outside of the Maestro, then installed in the Maestro and can be used for a few hours before it dies. Then it must be removed, to be charged. When it starts to get near being drained, the audio that comes out of the Maestro starts to squeal.

Flex suggests always plugging the maestro into your internet connection with an ethernet cable when running CW and not trying to do CW over Wi-Fi. I have found that my Wi-Fi connection is good enough that I can do CW over my Wi-Fi connection. However, I do plug it in when I am going to operate a contest just for added reliability. I also made sure

Remote Control CW Operations, continued

I had the “best” internet connection I could get at my house in NC and at my condo in New Orleans. I have a gig connection at both locations and new routers and modems. It may be overkill, but I wanted as few problems as possible, so went with the fastest connection I could get.

Station Setup:

In contests, I use N1MM software on my laptop computer to key a Winkeyer https://www.klelsystems.com/WKUSB_AF.html connected to the Flex. I also plug in a pair of N3ZN paddles ([N3ZN Keys | Vertical Iambic Paddle](#)) to the Winkeyer, so that I can key manually using the paddles or let N1MM send for me as I push the function keys. When not contesting, I either use the paddles or an old Johnson Speed-X straight key plugged directly into the Maestro. For headset/microphone I use a Radiosport 10th anniversary head [10th Anniversary Radiosport RS60CF headset with Electret-Condenser Mic – FlexRadio](#). I find this to be an excellent combination and get good audio reports using this microphone.

Latency:

I took my Maestro to a friend’s house and sat next to his transceiver. I connected to my radio via SmartLink and tuned to his frequency. He transmitted a Morse Code dot. One second later, I heard it on my receiver. We repeated this test several times and always got the same result. I thought this would make the radio unusable for Morse contesting. I took the radio home and did a similar test. I connected the Maestro directly to the radio, taking the internet out of the equation. I connected another radio to a dummy load and transmitted. 700ms later I heard the transmitted Morse dot on my Maestro. That means that the Maestro has a built-in latency of 700ms and the internet adds about another 300ms. The iPhone app has less latency than the Maestro or SMART SDR running on a Windows computer does. A full discussion about this topic can be found here: <https://community.flexradio.com/discussion/8023291/rx-audio-latency>. I was a bit discouraged after that. However, I found that, very surprisingly, the latency issue doesn’t prevent me from operating as I always have, in contests, both running and S&P, at speeds up to 40 WPM. You may be familiar with the annual 13 Colonies on the Air operating event each

Remote Control CW Operations, continued

July. I am one of the people who operates as K2J (North Carolina). This year, I decided to run as K2J using my Flex Maestro. I wanted to see if I could manage the big pile ups that we get with this radio, knowing its latency issues. I had no problems at all. I worked about 1,000 stations over the course of the week, on CW, being called in big pile ups. This is about the same amount of QSOs that I make each year in this event when running my Yaesu or any other radio. I then worked CWT both running and S&P and had no issues at all. I figure, if the radio can do those things, it can do anything I need it to do. That said, it doesn't do QSK as I would prefer, but such is life. It reminds me very much of when I ran tube rigs and the TR switch took a second to clunk from T to R after I got done sending. This radio takes about the same amount of time as an HW-101 to switch from T to R. It takes some getting used to after years of using good QSK (Ten Tec) or even OK QSK (Icom / Yaesu) rigs, but it is 100% usable.

This set up lets me enjoy my ham radio hobby, including highspeed Morse contesting when I am at my second home. Mission accomplished!

Problems and Future Plans:

Sometimes, I will attempt to connect to the radio using the Maestro or my iPhone app via SmartLink and it will say the radio is not available. This means my home internet router needs to be rebooted. It took me a while to figure out that was the problem. When this happens, I have to have a friend go to my house and reboot my router (Thanks John!). At first, I thought I would install the same internet controlled on/off switch that I use for the radio on the router. However, I then realized that will not work because once I turn it off, it will have no internet signal to receive the turn on command! I am glad I realized that before I installed it! Instead, I will need to buy a special internet-controlled router rebooting device. I am in the process of researching those now and will install one in the future.

There are ways other than SmartLink to remote control the radio and these involve things such as VPN (virtual private networks) and manual port forwarding. These topics are still new to me but I plan to set up a system like that in the future as well. I also am looking into ways to remotely disconnect and reconnect my antenna.

Remote Control CW Operations, continued

Additionally, the 572B tubes in my old Yaesu amplifier can't be remote controlled no matter what kind of software gets developed, so my remote operations are currently limited to 100W. In the future, I would like to add a remote-controlled amplifier to the station as well. Many options are out there and I am just starting to learn about them. Finally, I have been reading that Elecraft has some interesting remote control ideas for its K4 that are in the works [K4 Transceiver – Elecraft](#) I am interested in seeing if that may give me an even better remote CW experience than the FlexRadio does once that product is established in the marketplace.

I wish to thank my friends Ria, N2RJ, who first spoke with me about using FlexRadio as a solution to my remote control needs at Hamcation, and has been very helpful thanks to her YouTube videos [\(5\) Ria's Shack ham radio - YouTube](#), and my John KG4AKV who did the heavy lifting with my network set-up, has been my manual router re-booter when I am out of town, and through our many conversations helped me figure a lot of the things in this article out. I now share this information to help others who may wish to set up a remote station have an easy of time as possible.

The future is bright for Amateur Radio as new technology gives use even more ways to enjoy our hobby. For me, and for many others, remote operation will be a large part of that ham radio future.



(Transceiver in North Carolina)

Raleigh Amateur Radio Society
Membership Meeting Minutes
12 July 2022

The meeting was called to order at 7:30 P.M. Eastern Time by RARS President John, N8ZU via zoom.

The pledge of allegiance to the American flag was said. Visitors were introduced and those with upgrades were acknowledged.

Approval of Minutes:

There were no minutes available to approve.

- Vice President Tom, N4TL gave the vice president's report. Next month's program will be given by Richard Quick, W4RQ on the topic of "Small Gap-resonated HF Loop Antennas".
- Treasurer's report was given. 451 members at end of fiscal year. We currently have 340 members. Greg reported on cash assets, inventory and YTD spending.
- No secretary's report was given.
- Director's Reports:
 - Director Alan, AB4OZ Reported on upcoming swap fests. Announced the upcoming quarterly 10m net.
 - Youth Director Brantley, K4CBW reported that the portable operating SIG participated in the 13 colonies SES. Brantley requested ideas for the next outing.
 - Public Service Director Jeremy, K2HJX thanked everyone for volunteering for public service. This Sunday's event is fully staffed. Check out the webpage for future options to do public service.
 - Director Tadd, KA2DEW described the activities happening at the 4th Tuesday in person meetings. Noted involvement in a packet radio chat system called NC Packet.
 - Field Day Chair, Curt, W4CP Thanked everyone that participated in FD. Invited members and non-members alike, to join in the Shortwave Scanner SIG. 3rd Monday night each month on Zoom.
 - VE-Coordinator, Joe WA4GIR, in his absence, requested John N8ZU to announce that the Raleigh VE team will be administering exams under the

Membership Meeting Minutes

Laurel system, and described the process required to take an exam.

- President John, N8ZU announced that the RARS Board meeting will be on zoom next Tuesday at 7:00 P.M. All RARS members are welcome. Anyone with business for the meeting should contact N8ZU via the RARS webpage to get their business item on the agenda. Announced that our membership year begins on July 1st and invited anyone who would like to join or renew, to please do so.
- Vice President Tom, N4TL introduced our program for the evening. Joe, K4HEW presented his program; "Flying the KC-135 Tanker Related Communications".

The meeting was adjured at 8:47 P.M. Eastern time.

Respectfully Submitted,

Mark Kilmer, KM4JRH
Secretary RARS

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RARS Board Meeting

Minutes

15 March 2022

Call to Order:

The meeting was called to order at 7:00 P.M. Eastern Time by Vice President Tom, N4TL. The following were present: N4TL, N1FUA, AB4OZ, K4HF, W8WZ, KE4PAX, KA2DEW, KB2TNR, K4CBW, K4HM, K2HJX, N8ZU, WA4GIR, AD4GX

Approval of Minutes:

Minutes from April were approved.

Old Business:

RARS Board Meeting Minutes, 15 March 2022, continued

- John, N8ZU questioned whether or not the website changes have been made to incorporate the new student rate. The web page has not been updated, but Hank noted that it is a simple change.
- John indicated that arrangements have been made with the church to reserve the small and large rooms for future meetings.
- Joe, WA4GIR noted that VE testing will resume in May. Joe is planning to convert to Laurel for the test sessions.
- Brantley, K4CBW gave an update on the Portable Operating SIG. Carl, W8WZ suggested that funding come from the Education budget. Funding for the events will come from the line item.

New Business:

- Tadd, KA2DEW and Richard, N1FUA will take care of signage for the meetings.
- Hank, K4HM and Greg, KE4PAX gave an update on the changes to the membership form, leading to a discussion of what the new content should be. The content of the new form was discussed by the board. Hank will make the database changes.
- Vice President Tom, N4TL reported that the meeting program schedule is full until September.
- Treasurer Greg, KE4PAX gave the treasurer's report. He e-mailed his report to the board before the meeting. We have 420 members. Greg reported on the club finances. Payments have been made to the church and to Deltaforce.
- Education Director Carl, W8WZ No Report.
- Director at Large Alan, AB4OZ will do some site surveys, this or next week. All repeaters are working well. Alan took his blower and cleaned out the dirt in the shed.
- Director at Large Tadd, KA2DEW Requested additional ideas for promotion of RARSfest
- RARSfest Chair Nancy, KB2TNR gave an update on RARSfest. She ordered a banner to take to the Winston Salem hamfest. Nancy has been to several events to promote RARSfest.
- Exciter Editor Tom, N4TL, The Exciter is going very well. Tom is doing a very good job giving us a wonderful newsletter that we all appreciate. RARS is very fortunate to have such a good newsletter.
- Food Service Chair Richard, N1FUA will provide snacks for Hack Day.
- Webmaster Hank, K4HM will update the webpage to reflect the new student rate, and future in person meetings. Devon Hedge is still unreachable, and has replaced him with Tony as to access to the database. Hank made some repairs to the webpage caused by a JavaScript update.

RARS Board Meeting Minutes, 15 March 2022, continued

- Youth Director Brantley, K4CBW reported that the NC State youth are progressing with new members, and 2 have achieved their General. Brantley is publicizing Hack Day to them.
- ARRL Liaison Chuck, K4HF Working to get ARRL full participation for RARSfest. Marv Hoffman was elected as Section Manager.
- Greg instigated a discussion of changes to the webpage.

There being no further business the meeting adjourned at 8:48. The motion was made by Greg and Seconded by Brantley. The motion carried and the meeting adjourned.

Respectfully Submitted,

Mark Kilmer – KM4JRH

Secretary, RARS

RARS Board Meeting

Minutes

19 April 2022

Call to Order:

The meeting was called to order at 7:00 P.M. Eastern Time by President John, N8ZU. The following were present: N8ZU, N4TL, W4CP, K2HJX, N1FUA, AB4OZ, K4HF, W8WZ, KE4PAX, KA2DEW, KB2TNR, KT4JR, K4CBW, WA4GIR, K4HM.

Visiting are Tony O'Connor, K1OC and Charles Good, KM4AMT.

Approval of Minutes:

Approval of minutes postponed.

Old Business:

RARS Board Meeting Minutes, 19 April 2022, continued

Review of action items postponed.

New Business:

- John asked for an update of RARSfest. Nancy noted that a RARSfest debriefing meeting will be held tomorrow night.
- Alan, AB4OZ suggested giving a free membership to any who donate to RARS. After a discussion, it was decided not to move forward with the proposal.
- Greg Updated the group with the numbers of attendance and monies received from RARSfest. We did show a profit.
- Tadd, KA2DEW reported on the new 4th Tuesday meeting. Alan suggested moving the auction to the 4th Tuesday meeting. Tadd indicated that is a possibility, but wanted to see how the meetings were going to go before making the decision.
- Greg noted that some of the time sensitive door prize items for RARSfest did not get drawn, and suggested they be pointed in Tadd's direction for the 4th Tue. meeting.
- John asked for, and Brantley gave an update on the progress of his new Portable group. Chuck, K4HF told Brantley that funding would be provided by RARS for any reasonable event.
- Finalize changes to the new membership form.
- Field Day Chair: Curt, W4CP Made a motion to procure a banner for the hospitality tent, honoring Jim (N4CAE) and Beth (KF4QMR) Carroll for all they have done for RARS Field Day. The banner would be used at future Field Days as a continuing tribute to the Carroll's. Chuck seconded the motion and the board passed unanimously. As this will be the last year at the Carroll farm, Curt has been searching for a place that would have more walk-ins. Curt, W4CP suggested procuring safety vests for band captains and leaders. Nancy also brought up the idea of signage. Curt is planning to redo the current signs. Jeremy suggesting the possibility of using the Public Service vests.
- Vice President: Tom, N4TL Next month's presentation will be AUXCOM, by Ms. Virginia Enzor. Tom will schedule Murray for an Esperanto language presentation at some point. Tom is searching for the club projector.
- Treasurer: Greg, KE4PAX Gave the treasurer's report with inventory, cash assets and YTD income and expenses. We have 434 members. It is time to start looking at a budget for next fiscal year. Greg has

RARS Board Meeting Minutes, 19 April 2022, continued

started working on a proposed budget. Carl suggested adding a line item to cover Tadd's Hack Meeting and Brantley's youth activities. And adding Technician fees to apply toward a balanced budget.

- Secretary Mark: KM4JRH not present.
- Public Service Director: Jeremy, K2HJX Have had 3 events so far. Noted upcoming events.
- Education Director: Carl, W8WZ Hoping to restart classes this fall. He received a call from Darryl, W4CX who expressed an interest in helping with the education program. Carl will take him on this year as a deputy Education Director, possibly leading to him becoming the next Education Director in the future.
- Call Sign Trustee: Carl, W8WZ will process the paperwork to have himself assigned the trustee for N4RAL.
- Repeater Chair: Alan, AB4OZ gave the repeater report in Chuck's absence.
- RARSfest Chair: Nancy, KB2TNR will hold a debriefing meeting tomorrow night at 7:00 PM.
- Exciter Editor: The Exciter is going very well.
- Food Service Chair: Richard, N1FUA Will be providing snacks for the Hack meeting.
- ARRL Liaison: Chuck, N4HF At the hamfest, there were a number of ARRL activities. Over half a dozen people signed up for membership.
- Net Manager: Our Nets are going well. Net Control operators are doing a great job. Attendance is down a little bit from when the pandemic hit. But, no lower the prior to said pandemic.
- RARS VE Coordinator: Joe, WA4GIR Had the first testing session in two years. 30 tested, producing 13 new HAMs.
- Webmaster: Hank, K4HM Tony has worked out well, taking over parts of the website. There is discussion of moving to a CMS. Mentioned project of updating the membership application and the associated database work. Hank noted that due to the dynamic change requests for the new membership form, he is waiting for things to solidify before making the final changes.
- John suggested board members do a mock sign-up to see the membership form as it is and provide Hank with any ideas for the final changes.
- Youth Director: Brantley, K4CBW Reported that the NC State youth in the car club will have their event in the next few weeks. They are doing well and will be using ham radio for that event. W4ATC, the NC State radio station will be moving and has requested help in setting up the new station. RARS

RARS Board Meeting Minutes, 19 April 2022, continued

will be providing some expertise. Doug Hall, K4DSP has also volunteered to help out.

- None of the At Large Directors had reports.

Action Items:

1. Tadd will improve the sign-in process.
2. Nancy will create a poster with the RARS brochure information.
3. Curt will confer with Jeremy as to the possibility of using the PS vests.
4. Curt will look into refurbishing existing signs, or procuring new signage.
5. Greg will present the proposed budget at the May board meeting.
6. Carl will reach out to WCPSS to see if we can get our classroom for fall classes.
7. Carl and John will process the paper work to Carl re-assigned the trustee of N4RNC.
8. Richard will provide food for next weeks meeting at the church.
9. Joe will provide Greg contact information for the 13 new HAMs, who will contact them and provide them with the opportunity to take advantage of the free membership offered to new HAMs that tested under Joe.
10. All BoD members to look at the current membership application and bring back final suggestions for the form to Hank.
11. Hank to update the web page to indicate VE testing will occur on the 4th Tuesday, November, February, May and August.

Adjournment:

There being no further business the meeting adjourned at 8:53

Respectfully Submitted,

Mark Kilmer – KM4JRH

RARS Secretary

RARS Board Meeting

Minutes

17 May 2022

Call to Order:

The meeting was called to order at 7:00 P.M. Eastern Time by President John, N8ZU. The following were present: N8ZU, W4CP, N1FUA, AB4OZ, K4HF, W8WZ, KE4PAX, KA2DEW, KB2TNR, K4CBW, K4HM.

Approval of Minutes:

Approval of minutes postponed.

Old Business:

Review of action items postponed.

New Business:

- Tadd, KA2DEW reported on the new 4th Tuesday meeting and indicated that advertising more would might be needed.
- Field Day Chair: Curt, W4CP The same caterer we had last year will provide the Saturday supper and Curt will provide pizza Friday night for the setup crew. Carl volunteered to handle the traffic messaging and Richard volunteered to do the seminar. Still looking for someone to do the digital station.
- Vice President: Tom, N4TL No report.
- Treasurer: Greg, KE4PAX We have 442 members. Went over the cash assets and inventory and expenses. Also reviewed the proposed budget for next year. John made the motion to vote on the new budget.
- Secretary Mark: KM4JRH No report.
- Public Service Director: Jeremy, K2HJX No report.
- Education Director: Carl noted that WCPSS will not be doing in-person classes until 2023. So, we are looking for a new venue. Alan suggested the church, but Carl pointed out that the rent for the present class format would be cost prohibitive. There was some discussion initiated by Chuck to use the SWARC VFW hall. There is also a possibility of using a classroom at N.C. State.

RARS Board Meeting Minutes, 17 May 2022, continued

- Call Sign Trustee: Carl, W8WZ and Curt, W4CP will discuss the procedure for transferring the N4RAL call sign to Curt, offline.
- Repeater Chair: Alan, AB4OZ gave the repeater report in Chuck's absence. Alan noted that there was some traffic on the DMR system.
- RARSfest Chair: Nancy, KB2TNR Will begin planning for next year soon.
- Exciter Editor: No report.
- Food Service Chair: Richard, N1FUA Will be providing snacks for Field Day.
- ARRL Liaison: No report.
- RARS VE Coordinator: No report.
- Webmaster: Hank, K4HM Noted changes made to the website, including modifications to the new membership form and updated RARS VE information.
- Youth Director: Brantley, K4CBW Portable events are going well. Still have to come up with an activity for May. There will be no planned event due to Field Day. Brantley and Curt will confer to determine how the group might contribute to FD.
- None of the At Large Directors had reports.

Action Items:

1. John will begin announcing Field Day and requesting volunteers.
2. Brantley will invite the group out to the GOTO station.
3. Carl to follow up with using the SWARC location to teach the Technician classes.

Adjournment:

There being no further business the meeting adjourned at 8:34 PM.

Respectfully Submitted,

Mark Kilmer – KM4JRH

RARS Secretary

Raleigh Amateur Radio Society
Board Meeting Minutes
June 21, 2022

1) Call to Order and Quorum Call – Tom Lewis N4TL / Mark Kilmer KM4JRH

Tom Lewis N4TL, Alan AB4OZ, Carl W8WZ, N1FUA Richard Kroeger. Curt Phillips. W4PQ, Chuck Littlewood K4HF. Greg, Mark

2) Recognition of visitors, visitors' comments

3) Approval of Minutes from Last Board Meeting

4) Old Business

a) Status of Action Items from Past Meetings -- Mark Kilmer, KM4JRH

b) Other old business, if any

5) New Business

a) Fourth Tuesday update, plans, comments – how well is this format working, do we need new ideas for publicity?

b) Update on VE Testing May 17th – how well attended?

c) Portable operating update, plans, comments

d) Field Day Update – Curt Phillips W4CP

e) Other new business, if any

6) Officer's Reports

a) Vice President's Report Tom Lewis, N4TL

Tom reported that presentation schedule in the last Exciter is still correct.

7/12/2022	"Mid-air Refueling Mission & Communication Methods Used"	Joe Owen K4HEW
8/9/2022	Small resonated HF Loop Antennas	Richard Quick, W4RQ
9/13/2022	"Things hams were taught that aren't true"	Chuck Till, K4RGN
10/11/2022	RARS Officers nominations & Esperanto and Amateur Radio	Election committee & Murray Merner, K4MHM
11/8/2022	RARS Officers election and Show and Tell	Election committee & members

b) Treasurer's Report

Greg Seamster, KE4PAX

c) Secretary's Report

Mark Kilmer, KM4JRH

7) Committee Reports:

- a) Public Service Director Jeremy Lindsley, K2HJX
Jeremy sent an email and said, “Public Service is all running smoothly”.
- b) Public Information Officer Open
- c) Education Director Carl Davis, W8WZ
- d) Field Day Chair Curt Phillips, W4CP
- e) FM Repeater Chair Chuck DeCourt, W3WZN
- f) Club license trustees Carl Davis, W8WZ
- g) RARSfest Chair Nancy Torborg, KB2TNR (Acting)
- h) Exciter Editor Tom Lewis, N4TL
- i) Food Service Chair Richard Kroeger, N1FUA
- j) Net Manager Julie Royster, KT4JR
- k) ARRL Liaison Chuck Littlewood, K4HF
- l) NC QSO Party Chair Marty Young, W4MY
- m) RARS VE Coordinators Joe White, WA4GIR
Liz White, K04CK
- n) RARS Webmaster Hank Montgomery, K4HM
- o) Youth Chairman Brantley West
- p) At Large Director Alan Pitegoff, AB4OZ
- q) At Large Director Tadd Torborg, KA2DEW
- r) At Large Director Ken Latchum, AD4GX

- 8) Other reports or questions
- 9) Other comments from Board Members
- 10) Adjournment

Link from page 3.

Joe Owen' presentation is attached to the Exciter on the next page.

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Flying the KC-135 Tanker and Related Communications



Flying the KC-135 Tanker in Mid-air Refueling, and Related Communications

- Since 1957, we have had jet-powered tankers
- Gen. Curtis Lemay ~ 1949 - 1950
- Boeing 367-80 → 714 → KC-135a → 707
- Primarily Global Nuclear Bomber Support for SAC
- Refueling for all USAF Military Aircraft
- Combat Crew Training (CCTS) at Castle AFB
- I attended from May to Sept 1974

Flying the KC-135 Tanker and typical Pilot Training Syllabus

- 52+ weeks USAF Undergraduate Pilot Training - UPT
- Transition Training in aircraft type – 20 weeks for KC-135
- Land Survival Training – 2 weeks (E&E / Prison Camp)
- Water Survival School – 1 week (Biscayne Bay)
- Combat Crew Certification – 2 weeks at gaining unit
- Local Checkout / Checkrides 2x/year
- Ready to Pull SAC Alert – 7 days in Alert Facility
- Satellite Alert – Force Dispersal / Survivability

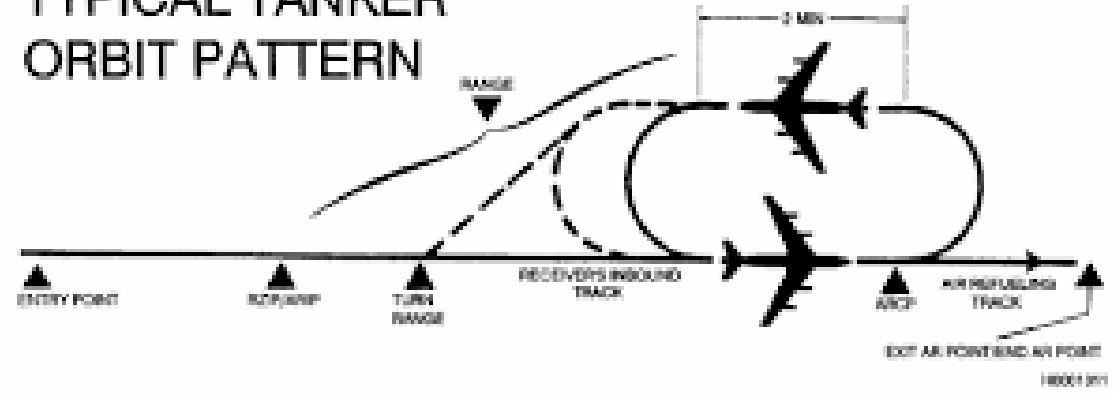


Flying the KC-135 Tanker and Related Communications

- Usually take-offs were made at high gross weights
- Up to *90 seconds* on the runway! (A - models)
- M.I.T.O. takeoffs - 15 second intervals (EWO)
 - * 30 second intervals for training
- Rendezvous at ARCP (control point) at ARCT (time)
- Designated Air Refueling tracks in US - 2000' block alt.
 - * FL290 - FL310 in ARTCC airspace
- Fuel transferred at >6400 lbs/min (~1000 gals/min)
- Boom Operator runs the show on radio from 3 miles-in.

The Rendezvous / Images from Tanker

TYPICAL TANKER ORBIT PATTERN



Flying the KC-135 Tanker and Related Communications



- Communication IMPORTANT: proximity of A-C inflight!
- All military Comm on HF and UHF frequencies
- HF initial callup by Receiver NAV to Tanker NAV then switch to designated UHF when in range ~ 75 miles
- Receiver arrives at ARCP 1,000' below Tanker @30 mi
- Rendezvous on outbound heading of AR track - visual
- Fuel transfer - usually 30,000 lbs up to 100,000 lbs.

Flying the KC-135 Tanker and Related Communications



■ Radios used in older A-model KC-135:

◆ HF: AN/ARC 21 and AN/ARC 190 (newer A-C)

- ☞ 300 W on AM signals, 1,000 W on SSB (both USB and LSB) - WARNING!
- ☞ Operated from 2 Mhz to 30 Mhz - Communicate with SAC Airways - OPS Reports
- ☞ Antenna mounted on top of tailfin as a horizontal “spike”
- ☞ Older models had end-fed long wire mounted to mid-section of tail to front of fuselage
- ☞ “Raytheon’s partnership with FlexRadio combines commercial innovation with advanced military hardening techniques to rapidly deliver a next-generation operational capability that supports strategic and tactical missions. Designed to augment space-based beyond-line-of-sight (BLOS) systems.”

◆ UHF: AN/ARC 34 - AN/ARC 62 - AN/ARC 164 (newer A-C)

- ☞ 10 W - Communicate with ARTCC and Tower/Ground Control stations
- ☞ Manufacturers: Bendix, Raytheon, Collins, RCA, etc.
- ☞ Antennas located bottom and top of fuselage



Frequencies Used in Flight Ops

Frequency	Band Name
118 - 137 MHz	VHF Air / Ground Communications (Civilian communications)
4725, 6761, 9027, 11243 KHz	Long Range HF Contact / OPS Reporting
225 - 328.6 & 335.4 - 400 MHz	UHF Air / Ground Communications (U.S. Military)
328.6 - 335.4 MHz	ILS Glide Slope

Current Operations

AN/ARC “Airborne Radio Communications”

AN/ARC-151..... UHF SATCOM Transceiver; A-37, KC-135, RF-4

AN/ARC-164 “Have Quick II” "HAVE QUICK II" UHF/AM Transceiver;
manufactured by **Raytheon (Magnavox)**;
used in B-52G/H, C/EC/RC-26D, F-15, F-16,
UH-1D, CH-47 and many others

HAVE QUICK (also **HAVEQUICK**, short **HQ**)
is an ECM resistant / frequency-hopping
system used to protect military aeronautical
mobile (OR) radio traffic.



[AN/ARA to AN/ARC - Equipment Listing](#)

Questions??



Thank you!